

IN THE CLAIMS:

Please enter the following amendments and/or additions:

1. (Original) A reductase comprising
 - (i) an amino acid sequence of SEQ ID NO:1 having a substitution at amino acid position 54 or 104 or at both of the amino acid positions 54 and 104, or
 - (ii) an amino acid sequence defined in (i) having further deletion, substitution, or addition of an amino acid or acids.
2. (Original) A reductase according to claim 1, which comprises an amino acid sequence of SEQ ID NO:1 having a substitution at amino acid position 54 or 104 or at both of the amino acid positions 54 and 104, and further substitution of an amino acid or acids.
3. (Original) A reductase according to claim 1, wherein said single amino acid substitution is a single amino acid substitution at amino acid position 54.
4. (Original) A reductase according to claim 1, wherein said single amino acid substitution is a single amino acid substitution at amino acid position 104.
5. (Original) A reductase according to claim 1, wherein amino acids at amino acid positions 54 and 104 are substituted.
6. (Original) A reductase according to claim 3 or 5, wherein the amino acid at the position 54 is substituted with a non-aromatic amino acid.

7. (Original) A reductase according to claim 3 or 5, wherein the amino acid at position 54 is substituted by glutamine, glycine, , serine, threonine, cysteine, asparagine, alanine, valine, isoleucine, methionine, lysine, arginine, aspartic acid, glutamic acid, tyrosine, proline or histidine.

8. (Original) A reductase according to claim 4 or 5, wherein the amino acid at the position 104 is substituted by cysteine.

9. (Original) A reductase according to claim 1, 2, 3, 4 or 5, wherein said further substitution comprises at least one single amino acid substitution at amino acid positions 245 and 271 in the amino acid sequence of SEQ ID NO:1.

10. (Original) A reductase according to claim 9, wherein said further substitution comprises a single amino acid substitution at amino acid position 245 in the amino acid sequence of SEQ ID NO:1.

11. (Original) A reductase according to claim 9, wherein said further substitution comprises a single amino acid substitution at amino acid position 271 in the amino acid sequence of SEQ ID NO:1.

12. (Currently Amended) A reductase according to claim 9-~~or~~10, wherein the amino acid at amino acid position 245 is substituted by arginine.

13. (Currently Amended) A reductase according to claim 9-~~or~~11, wherein the amino acid at amino acid position 271 is substituted by aspartic acid.

14. (Original) A reductase according to claim 1, wherein

(a) the amino acid at amino acid position 54 is substituted by glutamine and the amino acid at amino acid position 104 is substituted by cysteine;

(b) the amino acid at amino acid position 54 is substituted by glutamine, the amino acid of the position 104 is substituted by cysteine and said further substitution comprises a substitution of the amino acid at amino acid position 271 by aspartic acid;

(c) the amino acid at amino acid position 54 is substituted by glutamine and the amino acid at amino acid position 104 is substituted by cysteine, and said further substitution comprises

the amino acid substitution at amino acid position 245 by arginine, and the amino acid substitution 271 by aspartic acid;

(d) the amino acid of the position 54 is substituted by glutamine, and said further substitution comprises the amino acid substitution at amino acid position 245 by arginine;

(e) the amino acid of the position 54 is substituted by glutamine, and said further substitution comprises

substitution of the amino acid at amino acid position 245 by arginine, and substitution of the amino acid at amino acid position 271 by aspartic acid; or

(f) the amino acid at amino acid position 54 is substituted by glutamine and said further substitution comprises substitution of the amino acid at amino acid position 271 by aspartic acid.

15. (Currently Amended) A polynucleotide comprising a nucleotide sequence that encodes the amino acid sequence of the reductase of claim 1 ~~or 9~~.

16. (Original) A vector comprising the polynucleotide according to claim 15.

17. (Currently Amended) A transformant comprising the polynucleotide according to claim 15 ~~or the vector according to claim 16~~.

18. (Original) A vector according to claim 16, which further comprises a polynucleotide having a nucleotide sequence that encodes the amino acid sequence of a protein capable of converting NADP or NAD into NADPH or NADH.

19. (Original) A transformant according to claim 17, which further comprises a polynucleotide having a nucleotide sequence that encodes the amino acid sequence of a protein capable of converting NADP or NAD into NADPH or NADH.

20. (Currently Amended) A production method for (S)4-halo-3-hydroxybutyrate ester, which comprises reacting 4-halo-3-oxobutyrate ester with the transformant according to claim 17 ~~or 19~~, or a treated material thereof.

21. (Original) A method for modifying an enzyme, comprises substituting at least one single amino acid at amino acid positions 54 and 104 in the amino acid sequence of SEQ ID NO:1, thereby selectivity of said enzyme is improved.

22. (Original) A production method for a modified enzyme gene, which comprises replacing a codon that corresponds at least one of the amino acids of the positions 54 and 104 of an amino acid sequence of SEQ ID NO:1, with a codon that corresponds to the another amino acid(s), in a nucleotide sequence that encodes the amino acid sequence of SEQ ID NO:1.

23. (Newly Added) A reductase according to claim 10, wherein the amino acid at amino acid position 245 is substituted by arginine.

24. (Newly Added) A reductase according to claim 11, wherein the amino acid at amino acid position 271 is substituted by aspartic acid.
25. (Newly Added) A polynucleotide comprising a nucleotide sequence that encodes the amino acid sequence of the reductase of claim 9.
26. (Newly Added) A vector comprising the polynucleotide according to claim 25.
27. (Newly Added) A transformant comprising the vector according to claim 16.
28. (Newly Added) A transformant comprising the vector according to claim 26.
29. (Newly Added) A transformant according to claim 27, which further comprises a polynucleotide having a nucleotide sequence that encodes the amino acid sequence of a protein capable of converting NADP or NAD into NADPH or NADH.
30. (Newly Added) A transformant according to claim 28, which further comprises a polynucleotide having a nucleotide sequence that encodes the amino acid sequence of a protein capable of converting NADP or NAD into NADPH or NADH.
31. (Newly Added) A production method for (S)4-halo-3-hydroxybutyrate ester, which comprises reacting 4-halo-3-oxobutyrate ester with the transformant according to claim 19, or a treated material thereof.
32. (Newly Added) A production method for (S)4-halo-3-hydroxybutyrate ester, which comprises reacting 4-halo-3-oxobutyrate ester with the transformant according to claim 27, or a treated material thereof.

33. (Newly Added) A production method for (S)4-halo-3-hydroxybutyrate ester, which comprises reacting 4-halo-3-oxobutyrate ester with the transformant according to claim 28, or a treated material thereof.